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## BASES OF CONTROL FOR RETAIL INVENTORY

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During the last year or so, retail merchants have been compelled to give very careful consideration to the matter of inventory control. During the period of reckless buying and high gross profits, no severe penalty attached to the accumulation of a large inventory in any line of retail merchandise, since, while that period lasted, the buyer was practically sure of selling his goods at a profit, and departmental inventories as a whole could safely be assumed to be worth at least what they cost. Consequently, careless methods of merchandising were followed, and since no obvious punishment was incurred directly, these methods grew in many cases to be habits. But the falling off in demand which began late in 1920, and the accompanying slump in prices, have forced the matter of inventory control upon the attention of merchandise managers in a most painful fashion. An analysis of inventory in one of the larger Chicago stores showed that on January 1, 1922, 95 per cent of the inventory of one selling section had been received prior to September 1, 1921, and other sections showed almost equally startling figures, several other departments showing 70 per cent, 80 per cent, and even 85 per cent old stock.

For efficient operation of the stock of any selling department two things are desirable. They are: (1) A control of stock in terms of physical units, which will not only enable the department buyer to know *how much* stock he has, but also to classify the stock by the length of time it has been in the store. (2) A control of stock in terms of value, which will not misrepresent each month's profits by allowing the buyer to overvalue the stock remaining on hand at the end of the month.

Control of physical quantity of stock is a somewhat different proposition in a retail store from what it is in a manufacturing concern. In many of the departments of a retail establishment it is practically impossible, and indeed undesirable, to maintain a standard classification of the items carried in stock, since the factor of style plays so prominent a part in the retail business, and any new shipment of merchandise is likely to be different in some way from any merchandise previously on hand. For this reason the most satisfactory manner of controlling physical quantity of merchandise in sections where stand-

ardization is impracticable seems to be by a separate record of each order providing for information on the date ordered, the date of deliveries, quantities received, sales, sales returns, and balance in stock. This sort of record could advantageously be maintained by or for the buyers for such departments like suits, coats, hats, waists, and women's shoes, in which the style element is a prominent factor, and standardization of commodities consequently difficult. In certain other departments, like furniture, rugs, household utilities, and the like, standardization may be quite feasible. In such a case the commodities carried in stock may be classified and numbered or otherwise symbolized, and a perpetual inventory maintained similar to the balance of stores system employed in a manufacturing concern. Certain other departments, however, carry a great number of units, the unit value of which is small, the variety great, and the types continually changing to meet the latest style demands. Such departments are children's wear, haberdashery, and notions. In a department with these characteristics no records of physical inventory which might be maintained would be likely to justify the labor involved in keeping them, and a control of inventory in terms of value is all that can be advantageously maintained.

Whether or not a record of stock is kept in terms of physical units, it is desirable that the stock on hand in each department be stated in terms of value at least once a month. In departments which do not maintain a control of physical quantities, this is the only form of control exercised over inventory.

Assuming that a physical inventory is taken only semi-annually, as is typically true in large retail stores, then the monthly valuation of inventory can represent at best only an estimate, but there is no reason why such an estimate may not be close enough for purposes of control. There are, in general, two methods employed in arriving at the monthly estimate of inventory for a given department or section. These are known to retail managers as (1) the cost basis of inventory valuation, (2) the retail price basis of inventory valuation.

There are two variations of the method employed in estimating inventory at cost. One of them involves figuring all sales at cost as well as at retail. This necessitates a considerable amount of labor on the part of the retail auditing division, but makes control of inventory at cost a very simple matter once the figure of sales at cost is available. It is necessary only to add together beginning inventory at cost and purchases at cost and to subtract from this the

total sales at cost. The result would be the ending inventory at cost. Assume that for a given department inventory at cost on May 1 is \$7,000, purchases for May, at cost, \$7,500, and net sales for May, at cost, \$7,800. It is evident, that the inventory at the end of May, shown at cost, should be the difference between the total of beginning inventory and purchases, or \$14,500, and sales at cost, or \$7,800. The resulting inventory valuation is \$6,700.

Very few retail establishments, however, figure sales at cost. Where this figure is not available, the method of estimating inventory at cost would be to take the total of beginning inventory and purchases, as in the other case, and subtract from this amount the sales at retail less the percentage of gross profit which is estimated to be an average for the department. Assume beginning inventory to be \$7,000 and purchases \$7,500, as before. Sales at retail are \$12,000. Past records show the average gross profit for the department to be  $33\frac{1}{3}$  per cent. Applying this to the figure of sales, the cost of sales is found to be \$8,000, and the final inventory \$6,500. This figure varies slightly from the result obtained before, since the estimated average gross profit is slightly lower than the actual gross profit previously assumed to have been secured. This serves to illustrate the fact that the accuracy of such an estimate of inventory depends upon the accuracy of the estimated average gross profit.

During the past year or so there has been a marked tendency on the part of retail merchandise men to favor the retail price basis of controlling inventory. The method of computation is as follows. As each purchase invoice comes in, the mark-up is entered on the invoice, and the amount of purchase is recorded at both cost and retail. The amount of the beginning inventory is carried at retail, being the result of the estimate made at the beginning of the preceding month. The beginning inventory is also kept at retail less mark-up, a figure obtained by the method to be explained later. A record is kept of all changes made in retail prices during the month, whether mark-ups or mark-downs. At the end of the month, beginning inventory at retail and purchases at retail are added together, and the amount of net mark-downs during the month subtracted, or net mark-ups added. From the resulting figure is subtracted net sales at retail, the difference being the final inventory at retail. The average rate of mark-up obtaining during the month is then computed and this percentage is applied to the figure of final inventory at retail in order to reduce it to the proper valuation. The resulting figure

will not be cost, although in some cases it might coincide with cost. It will be simply inventory at retail less the average mark-up for the month.

To illustrate, assume that the following data are available for X department at the end of the month of May: beginning inventory at retail, \$10,000, including a mark-up of \$3,000, making the net valuation \$7,000; purchase at cost \$7,500, at retail, \$12,500; net sales at retail, \$12,000; net mark-downs, \$800. The method of finding inventory at retail would be as follows: Beginning Inventory (retail) + Purchases (retail) - Mark-downs - Sales = Final Inventory (retail). Expressed in figures this would be: \$10,000 + \$12,500 - \$800 - \$12,000 = \$9,700. To reduce this retail inventory figure to the correct basis for valuation in the financial statements it is necessary to compute the average mark-up on all goods on hand during the month, whether sold or not, and to reduce the retail inventory by this percentage. The mark-up on beginning inventory was assumed to be \$3,000. On purchases it was the difference between the retail figure, \$12,500, and cost, \$7,500, or \$5,000. Thus the total mark-up on all goods in stock during the month was \$8,000, and the total retail figure \$22,500. But the mark-downs of \$800 taken during the month would reduce the total mark-up to \$7,500, and the total retail figure to \$21,700. The average percentage of mark-up for the month is therefore approximately 33. Applying this to the amount of the inventory at retail, \$9,700, this figure will be found to include \$3,201 mark-up, so that the net valuation for purposes of the monthly financial statement will be \$9,700 - \$3,201, or \$6,499.

This basis of valuing inventory has the merit of taking into consideration the effect of mark-downs or mark-ups at the time they are taken, without waiting until the goods are sold. Under the system of valuing inventory at cost, if the departmental buyer allows his inventory to grow to unwieldy figures, and is compelled to take mark-downs, it does not affect his monthly showing of net profits except as it is reflected by the sales actually made at a lowered gross profit. Working on the retail basis, however, as soon as the mark-downs are taken, the lessened profits of the department are plainly evident.

This may be illustrated by assuming a situation only too common in this year of grace 1922. A buyer has in stock at the first of the month merchandise which cost \$21,000, and is marked at retail \$30,000. This figure includes a large percentage of old stock, so he takes mark-downs during the process of the month, amounting to

\$6,000. Purchases for the month are \$7,000 at cost, \$10,000 at retail. Net sales for the month were \$12,000, retail, and the average percentage of gross profit, estimated by the accounting division on the basis of past records, is 30 per cent. Applying this percentage to the figure of sales would show a cost of sales of \$8,400. On the cost basis of valuation, therefore, final inventory would be obtained by adding \$21,000 (the initial inventory at cost) and \$7,000 (purchases at cost), and subtracting \$8,400 (estimated cost of sales), giving an inventory of \$19,600. Gross profit for the month under this method would of course be the difference between \$12,000 (sales at retail) and \$8,400 (estimated cost of sales), or \$3,600.

Using the same data, but employing the retail method of valuation, the computation of final inventory would be: \$30,000 (initial inventory at retail)+\$10,000 (purchases at retail)−\$6,000 (total mark-downs)−\$12,000 (sales at retail)= \$22,000, or ending inventory at retail. The next step is to find the average percentage of mark-up for the month. This is computed by adding together beginning inventory at retail and purchases at retail, a total of \$40,000, subtracting the month's mark-downs of \$6,000, leaving a difference of \$34,000, which represents the revised retail figure, and subtracting from this the sum of beginning inventory and purchases at cost, or \$28,000. The difference, \$6,000, is the total remaining mark-up, which, taken upon the basis of the revised retail figure of \$34,000, gives an average mark-up percentage of 17.6+. Applying this to \$22,000, the figure of final inventory at retail, the figure is found to include a mark-up of \$3,872. The amount of inventory to be taken for purposes of the financial statements is the difference, or \$18,128. This valuation of inventory will result in a very different showing of gross profit from that obtained by the cost basis of valuation. This fact can be made evident by submitting the trading section of the departmental profit and loss statement under each of the two methods, as follows:

	Cost Basis	Retail Basis
Net Sales.....	\$12,000	\$12,000
Cost of Goods Sold		
Initial Inventory.....	\$21,000	\$21,000
Purchases.....	7,000	7,000
	<hr/> 28,000	<hr/> 28,000
Less Final Inventory.....	19,600	18,128
	<hr/>	<hr/>
Cost of Goods Sold.....	8,400	9,872
Gross Profit on Sales.....	\$3,600	\$2,128

This difference results in recognizing the effects of the month's mark-downs, not only on the sales made, but on the value of the remaining merchandise. The showing of gross profit over a considerable period of time will be the same under the two methods, but the retail method gives a more immediate control of the situation, showing at the same time a more logical valuation of inventory and a truer statement of the period's gross profit. To the departmental buyer it furnishes a warning and an incentive to keep his stock within limits, and clear of dead merchandise. This basis of inventory valuation has been approved by the Treasury Department for purposes of the income tax, and seems to be coming increasingly into favor with progressive merchandise managers.

A few stores employ a variation of the retail method which goes a step farther than the one just outlined, and is in the opinion of the writer an even more desirable device for control. This method involves the establishment by the management of a standard percentage of gross profit for each department. The departmental buyer is held responsible for maintaining this standard percentage of gross profit for his department as a whole. It is not necessarily meant by this that he must show this percentage on every month's sales, or on every line carried, but that for a given year or a given season his total departmental sales must show an average gross profit not lower than the standard percentage set. Under this system it is assumed at all times that the departmental inventory at retail figures includes a percentage of mark-up not less than the standard percentage established. The valuation to be placed on the inventory for purposes of the financial statements under this method would therefore be the figures of retail inventory less the standard percentage of gross profit. It is true that this might result in showing the inventory at a valuation higher than cost, in case the actual gross profit realized by the department for the period showed a higher percentage of sales than the standard percentage adopted. Except in time of a rising market, however, this would be the exceptional case, and with a rising market, cost is the safest basis of inventory valuation. At a time like the present, however, when the tendency of the market is downward, the retail price basis is the more conservative one.

The effect of this modification of the retail basis of inventory valuation may be illustrated by use of the data employed in the last illustration. Assume that the standard percentage of gross profit set for the department in question is 35 per cent. Then \$22,000,

the retail figure of inventory, is assumed to include a mark-up of 30 per cent, or \$6,600. On this basis, this particular buyer's inventory would be valued at \$22,000 less \$6,600, or \$15,400. This figure of final inventory, used in the departmental statement of profit and loss, results in a showing of a loss on sales of \$600, as compared with a profit of \$3,600 under the cost method of valuation and of \$2,128 under the more generally employed variation of the retail method.

It will be evident that the policy of holding the buyer responsible for a standard percentage of mark-up, and of applying this to his inventory valuation, will result in showing up his inventory sins in their full enormity. Under this method it is extremely difficult to imagine any departmental buyer allowing his stock to get into such a condition that at a given time 95 per cent of it is more than four months old.

It is perfectly true that even under the cost basis of valuation a day of reckoning must come sooner or later. But the tendency, so long as inventory is valued at cost, is to have it come later. Under the first variation of the retail basis which was described, some weight is given to mark-downs, but the amount of mark-up which is assumed to be included in the retail figure of inventory, and subtracted from it to obtain the net valuation to be placed on inventory, is based on the average rate of mark-up actually obtaining during the current month. In case heavy mark-downs have been taken, the actual average mark-up is fairly sure to be considerably lower than the normal average mark-up prevailing in the department. This means that the amount to be subtracted from the figure of inventory at retail will be a smaller percentage of that figure and that inventory will therefore be valued at a higher figure than if a percentage approximating the normal were used. Even under the first variation of the retail method, therefore, it is possible to postpone the showing of unfavorable results for a considerable length of time. The application of a standard mark-up percentage, however, results in checking the buyer sharply every month, and strongly discouraging him from permitting the accumulation of any stock to which he is not willing to have the standard percentage applied.

The writer has had opportunity to observe the operation of this last method in a large furniture store, where it has apparently more than justified its use. The merchandise manager of this establishment has applied this basis of valuation ruthlessly all through the period of falling prices. This store, in contrast to certain others, had secured

a very satisfactory turnover, kept its stock clean and within easily manageable limits, and has shown a rate of net profit which in view of existing business conditions is eminently satisfactory. The buyers have at all times been in a position to take advantage of lowered wholesale prices, instead of being overstocked with merchandise bought at a price level much higher than the current one.

This satisfactory condition of affairs is the result of a progressive merchandising policy, rather than of an inventory system, but it does not seem too much to claim that in a period of falling prices the use of the retail price basis of inventory valuation, especially if applied on the basis of a standard departmental gross profit, has a tendency to prevent overconfidence on the part of the departmental buyer, and to stimulate him to continued effort to keep his stock moving. This basis of inventory valuation would not be desirable in a period of rising prices, since it would generally result in a valuation higher than cost. In a time of rising prices, therefore, the cost basis of valuation is more desirable.

To summarize: The writer subscribes to the doctrine that merchandise inventory should be valued at cost or market, whichever is the lower. The purpose of this note is to consider what seems a fairly satisfactory method of arriving at a fair market valuation, in case the market represents the lower, and therefore the acceptable basis of valuation.

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